

CPC**COOPERATIVE PATENT CLASSIFICATION****E01B**

PERMANENT WAY; PERMANENT-WAY TOOLS; MACHINES FOR MAKING RAILWAYS OF ALL KINDS (derailing or rereiling blocks on track, track brakes or retarders [B61K](#))

Structure of the permanent way for railways or tramways

E01B 1/00

Ballastway; Other means for supporting the sleepers or the track; Drainage of the ballastway (draining by trenches, culverts, or conduits [E01F 5/00](#))

E01B 1/001

. {Track with ballast}

E01B 1/002

. {Ballastless track, e.g. concrete slab trackway, or with asphalt layers}

E01B 1/004

.. {with prefabricated elements embedded in fresh concrete or asphalt}

E01B 1/005

.. {with sleeper shoes}

E01B 1/007

.. {with interlocking means to withstand horizontal forces}

E01B 1/008

. {Drainage of track}

E01B 2/00

General structure of permanent way (railway networks [B61B 1/00](#); foundations for pavings [E01C 3/00](#); foundations in general [E02D](#))

E01B 2/003

. {Arrangement of tracks on bridges or in tunnels}

E01B 2/006

. {Deep foundation of tracks}

E01B 3/00

Transverse or longitudinal sleepers (for switches or crossings [E01B 7/22](#)); **Other means resting directly on the ballastway for supporting rails**

E01B 3/02

. made from wood (drying or impregnating [B27K](#))

E01B 3/04

.. Means for preventing cleaving

E01B 3/06

... Anti-cracking dogs

E01B 3/08

... Straps **E01D 3/06** or bands for hooping or encircling sleepers (apparatus for hooping wooden railway sleepers on the spot [E01B 31/28](#))

E01B 3/10

.. Composite sleepers

E01B 3/12

.. Longitudinal sleepers; Longitudinal sleepers integral or combined with tie-rods; Combined longitudinal and transverse sleepers

E01B 3/14

.. Slabs; Blocks; Fastening tie-rods to them

E01B 3/16

. made from steel

E01B 3/18

.. Composite sleepers

E01B 3/20

.. Sleeper construction for special purposes, e.g. with openings for ballast working (sleepers for shiftable track for heavy loads [E01B 23/12](#))

E01B 3/22

.. Longitudinal sleepers; Longitudinal sleepers integral or combined with tie-rods;

- Combined longitudinal and transverse sleepers
- E01B 3/24 .. Slabs; Blocks; Pot sleepers; Fastening tie-rods to them
- E01B 3/26 .. combined with inserts of wood artificial stone or other material
- E01B 3/28 . made from concrete or from natural or artificial stone ([manufacture B28](#))
- E01B 3/30 .. Hollow sleepers
- E01B 3/32 .. with armouring or reinforcement ([hollow sleepers E01B 3/30](#))
- E01B 3/34 ... with pre-tensioned armouring or reinforcement ([pre-tensioned armouring or reinforcing elements E04C 5/00](#))
- E01B 3/36 .. Composite sleepers
- E01B 3/38 .. Longitudinal sleepers; Longitudinal sleepers integral or combined with tie-rods; Combined longitudinal and transverse sleepers; Layers of concrete supporting both rails
- E01B 3/40 .. Slabs; Blocks; Pot sleepers; Fastening tie-rods to them
- E01B 3/42 .. combined with inserts of wood or other material
- E01B 3/44 . made from other materials only if the material is essential
- E01B 3/46 . made from different materials ([E01B 3/26](#), [E01B 3/42 take precedence](#))
- E01B 3/48 . Distance keepers or tie-rods for sleepers
- E01B 5/00 Rails; Guard rails ([manufacture of rails B21B](#)); Distance-keeping means for them**
- E01B 5/02 . Rails
- E01B 5/04 .. Grooved rails
- E01B 5/06 .. Reversible or invertible rails
- E01B 5/08 .. Composite rails; Compound rails with dismountable or non-dismountable parts
- E01B 5/10 ... Composite grooved rails; Inserts for grooved rails
- E01B 5/12 .. Rails with a foot serving as a sleeper
- E01B 5/14 .. Rails for special parts of the track, e.g. for curves
- E01B 5/16 . Distance keepers
- E01B 5/18 . Guard rails; Connecting, fastening or adjusting means therefor
- E01B 7/00 Switches; Crossings ([operating mechanisms B61L](#))**
- E01B 7/02 . Tongues; Associated constructions
- E01B 7/04 .. Constructions with tongues turning about a vertical pivot at the end
- E01B 7/06 .. Constructions with flexible tongues or flexible fishplates
- E01B 7/08 .. Other constructions of tongues, e.g. tilting about an axis parallel to the rail, movable tongue blocks or rails
- E01B 7/10 . Frogs
- E01B 7/12 .. Fixed frogs made of one part or composite

- E01B 7/14 .. with movable parts
- E01B 7/16 .. Jump-over frogs
- E01B 7/18 . Combinations of switches and crossings
- E01B 7/20 . Safety means for switches, e.g. switch point protectors, auxiliary or guiding rail members
- E01B 7/22 . Special sleepers for switches or crossings; Fastening means therefor
- E01B 7/24 . Heating of switches
- E01B 7/26 . Lubricating of switches ([lubricating of rails B61K 3/00](#))
- E01B 7/28 . Crossings
- E01B 7/30 .. Jump-over crossings
- E01B 9/00** **Fastening rails on sleepers, or the like** ([fastening rails to bridges E01D 19/12](#))
- E01B 9/02 . Fastening rails, tie-plates, or chairs directly on sleepers or foundations; Means therefor
- E01B 9/04 .. Fastening on wooden or concrete sleepers or on masonry without clamp members
- E01B 9/06 ... Railways spikes ([nails in general F16B](#))
- E01B 9/08 Elastic spikes
- E01B 9/10 ... Screws or bolts for sleepers ([screws or bolts in general F16B](#))
- E01B 9/12 ... Retaining or locking devices for spikes or screws
- E01B 9/14 ... Plugs, sleeves, thread linings, or other inserts for holes in sleepers ([inserting plugs or sleeves E01B 31/26](#))
- E01B 9/16 for wooden sleepers
- E01B 9/18 for concrete sleepers
- E01B 9/20 ... by keys
- E01B 9/22 .. Fastening on steel sleepers without clamp members
- E01B 9/24 ... by keys
- E01B 9/26 ... Welded fastenings
- E01B 9/28 .. Fastening on wooden or concrete sleepers or on masonry with clamp members
- E01B 9/30 ... by resilient steel clips
- E01B 9/303 {the clip being a shaped bar}
- E01B 9/306 {the clip being a shaped plate}
- E01B 9/32 .. Fastening on steel sleepers with clamp members
- E01B 9/34 ... by resilient steel clips
- E01B 9/36 .. Metal sole-plates for rails which rails are directly fastened to sleepers
- E01B 9/38 . Indirect fastening of rails by using tie-plates or chairs; Fastening of rails on the tie-plates or in the chairs
- E01B 9/40 .. Tie-plates for flat-bottom rails ([manufacture B21](#))
- E01B 9/42 ... of two or more parts

- E01B 9/44 .. Fastening the rail on the tie-plate
- E01B 9/46 ... by clamps
- E01B 9/48 by resilient steel clips
- E01B 9/483 {the clip being a shaped bar}
- E01B 9/486 {the clip being a shaped plate}
- E01B 9/50 ... by keys
- E01B 9/52 by resilient keys
- E01B 9/54 .. Rail chairs
- E01B 9/56 ... for rails with two or more treads
- E01B 9/58 .. Fastening the rail in the chair

- E01B 9/60 . Rail fastenings making use of clamps or braces supporting the side of the rail
- E01B 9/62 . Rail fastenings incorporating resilient supports
- E01B 9/64 . Rail fastenings gripping or encircling the sleeper
- E01B 9/66 . Rail fastenings allowing the adjustment of the position of the rails, so far as not included in the preceding groups

- E01B 9/68 . Pads or the like, e.g. of wood, rubber, placed under the rail, tie-plate, or chair

NOTE

[E01B 9/68](#) and indexing codes for the different characteristics are given

- E01B 9/681 .. {characterised by the material}
- E01B 9/683 ... {layered or composite}
- E01B 9/685 .. {characterised by their shape}
- E01B 9/686 ... {with textured surface}
- E01B 9/688 ... {with internal cavities}

E01B 11/00 Rail joints (electrical connection of the rail [B60M 5/00](#))

- E01B 11/02 . Dismountable rail joints
- E01B 11/04 .. Flat fishplates
- E01B 11/06 ... with keys or pins
- E01B 11/08 .. Angle fishplates
- E01B 11/10 .. Fishplates with parts supporting or surrounding the rail foot
- E01B 11/12 .. Fishplates engaging only the rail foot
- E01B 11/14 .. Rail foot flange clips in one piece
- E01B 11/16 .. Fishplates for joining rails of different sections
- E01B 11/18 .. Fishplates for temporarily repairing broken rails
- E01B 11/20 .. with gap-bridging
- E01B 11/22 ... by parts of the rails
- E01B 11/24 with oblique or overlapping rail ends

- E01B 11/26 with interlocking rail ends
- E01B 11/28 . . . by parts of the joining members
- E01B 11/30 Fishplates with integral tread parts lying in the cross-section of the rail head
- E01B 11/32 . . . by separate parts, Inserts bridging both rail heads
- E01B 11/34 Auxiliary rail beside gap
- E01B 11/36 . . Fastening means for fishplates
- E01B 11/38 . . . Loking arrangements for fastening means ([locking means for nuts or bolts in general F16B](#))
- E01B 11/40 . . Dismountable rail joints combined with welded parts

- E01B 11/42 . Joint constructions for relatively movable rails, e.g. rails on turntables, traversers, or swing bridges

- E01B 11/44 . Non-dismountable rail joints; Welded joints ([welding methods B23K](#))
- E01B 11/46 . . General methods for making gapless tracks
- E01B 11/48 . . Joints made by flame welding
- E01B 11/50 . . Joints made by electric welding
- E01B 11/52 . . Joints made by alumino-thermal welding

- E01B 11/54 . Electrically-insulating rail joints

- E01B 11/56 . Special arrangements for supporting rail ends ([foot supports E01B 11/08 to E01B 11/14](#))
- E01B 11/58 . . Bridge plates
- E01B 11/60 . . . with wedges
- E01B 11/62 . . Bridge chairs ([chairs E01B 9/54 to E01B 9/58](#))

- E01B 13/00 Arrangements preventing shifting of the track**

- E01B 13/02 . Rail anchors

- E01B 15/00 Guards for preventing a person`s foot being trapped in grooved rails**

- E01B 17/00 Cattle guards connected to the permanent way** ([grids in general for preventing cattle from straying A01K 3/00](#))

- E01B 19/00 Protection of permanent way against development of dust or against the effect of wind, sun, frost, or corrosion; Means to reduce development of noise** ([snow fences E01F 7/02, snow-ploughs E01H 8/02, watering E01H 11/00](#))

- E01B 19/003 . {Means for reducing the development or propagation of noise}
- E01B 19/006 . {Means for protecting the underground against spillage}

- E01B 21/00 Track superstructure adapted for tramways in paved streets** ([paving E01C 9/04,](#)

[E01C 9/06](#))

- [E01B 21/02](#) . Special supporting means; Draining of rails
- [E01B 21/04](#) . Special fastenings, joint constructions, or tie-rods

- [E01B 23/00](#) Easily dismantlable or movable tracks, e.g. temporary railways; Details specially adapted therefor**

- [E01B 23/02](#) . Tracks for light railways, e.g. for field, colliery, or mine use
- [E01B 23/04](#) .. Fastening or joining means
- [E01B 23/06](#) .. Switches ([turntables B60S](#), [B61J](#)); Portable switches; Turnouts

- [E01B 23/08](#) . Temporary tracks for use while repairing tramways

- [E01B 23/10](#) . Shiftable tracks for heavy loads, e.g. carrying excavators
- [E01B 23/12](#) .. Sleepers
- [E01B 23/14](#) .. Fastening or joining means ([fastening of rails by keys E01B 9/24](#))
- [E01B 23/16](#) .. Switches

- [E01B 25/00](#) Tracks for special kinds of railways ([systems B61B](#); [wheel tracks on roads E01C 9/02](#))**

- [E01B 25/02](#) . Tracks for rack railways
- [E01B 25/04](#) .. Rack rails; Supports or connections for rack rails
- [E01B 25/06](#) .. Switches; Frogs; Crossings

- [E01B 25/08](#) . Tracks for mono-rails with centre of gravity of vehicle above the load-bearing rail
- [E01B 25/10](#) .. Mono-rails; Auxiliary balancing rails; Supports or connections for rails
- [E01B 25/12](#) .. Switches; Crossings

- [E01B 25/14](#) . Tracks for cable-drawn railway vehicles
- [E01B 25/15](#) .. Switches; Crossings

- [E01B 25/16](#) . Tracks for aerial rope railways with a stationary rope
- [E01B 25/18](#) .. Ropers; Supports, fastening or straining means for ropes ([ropes in general D07B](#); [masts E04H 12/00](#); [ropes sockets F16G](#))
- [E01B 25/20](#) .. Switches; Crossings

- [E01B 25/22](#) . Tracks for railways with the vehicle suspended from rigid supporting rails
- [E01B 25/24](#) .. Supporting rails; Auxiliary balancing rails; Supports or connections for rails
- [E01B 25/26](#) .. Switches; Crossings

- [E01B 25/28](#) . Rail tracks for guiding vehicles when running on road or similar surface ([wheel tracks on roads E01C 9/02](#))

- [E01B 25/30](#) . Tracks for magnetic suspension or levitation vehicles

- E01B 25/305 .. {Rails or supporting constructions}
- E01B 25/32 .. Stators, guide rails or slide rails
- E01B 25/34 .. Switches; Frogs; Crossings

- E01B 26/00** **Tracks or track components not covered by any one of the preceding groups**

- E01B 26/005 . {Means for fixing posts, barriers, fences or the like to rails}

- Making, maintaining, renewing, or taking-up the ballastway or the track; Tools or machines specially designed therefor (derailing or rerailling of machines [B61K 5/00](#); removal of foreign matter from the permanent way, vegetation control applying liquids [E01H](#))**

- E01B 27/00** **Placing, renewing, working, cleaning, or taking-up the ballast, with or without concurrent work on the track; Devices therefor; Packing sleepers**

- E01B 27/02 . Placing the ballast; Making ballastway; Redistributing ballasting material; Machines or devices therefor; Levelling means
- E01B 27/021 .. {by devices moving underneath the track, e.g. ballast sleighs}
- E01B 27/022 .. {by devices moving on the track with or without spreading or levelling}
- E01B 27/023 .. {Spreading, levelling or redistributing ballast already placed}
- E01B 27/025 ... {by means of non-driven tools}
- E01B 27/026 ... {by means of driven tools, e.g. rotating brooms or digging devices}
- E01B 27/027 .. {Loosening ballasting material}
- E01B 27/028 .. {Compacting ballasting material; Performing ballast cores or seats for sleepers}

- E01B 27/04 . Removing the ballast; Machines therefor, whether or not additionally adapted for taking-up ballast ([E01B 27/06](#), [E01B 27/12](#) takes precedence; redistributing ballasting material [E01B 27/02](#))

- E01B 27/06 . Renewing or cleaning the ballast in situ, with or without concurrent work on the track
- E01B 27/08 .. the track having been taken-up ([E01B 27/11](#) takes precedence)
- E01B 27/10 .. without taking-up track ([E01B 27/11](#) takes precedence)
- E01B 27/102 ... {Removing unwanted material without removing the ballast}
- E01B 27/105 ... {the track having been lifted}
- E01B 27/107 ... {along between the tracks only}
- E01B 27/11 .. combined with concurrent renewal of track components

- E01B 27/12 . Packing sleepers, with or without concurrent work on the track; Compacting track-carrying ballast

- E01B 27/13 .. Packing sleepers, with or without concurrent work on the track (performing ballast cores or seats for sleepers [E01B 27/02](#))
- E01B 27/14 ... Manual tools or hand-held power tools therefor
- E01B 27/16 ... Sleeper-tamping machines
- E01B 27/17 combined with means for lifting, levelling or slewing the track
- E01B 27/18 by introducing additional fresh material under the sleepers, e.g. by the

- measured-shovel method, by the blowing method
- E01B 27/20 . . . Compacting the material of the track-carrying ballastway, e.g. by vibrating the track, by surface vibrators (of trackless ballastway [E01B 27/02](#); for packing sleepers [E01B 27/12](#))
- E01B 29/00** **Laying, rebuilding, or taking-up tracks; Tools or machines therefor** ([E01B 27/00](#), [E01B 31/00](#) take precedence)
- E01B 29/005 . {Making of concrete parts of the track in situ}
- E01B 29/02 . Transporting, laying, removing, or renewing lengths of assembled track, assembled switches, or assembled crossings ([E01B 29/04](#) takes precedence)
- E01B 29/04 . Lifting or levelling of tracks ([lifting devices in general B66F](#))
- E01B 29/05 . Transporting, laying, removing, or renewing both rails and sleepers (as assembled units [E01B 29/02](#))
- E01B 29/06 . Transporting, laying, removing or renewing sleepers ([E01B 29/05](#) takes precedence; carrying devices [B65G 7/12](#))
- E01B 29/09 . . . under, or from under, installed rails
- E01B 29/10 for inserting or removing sleepers
- E01B 29/11 Removal involving destruction of the sleeper, e.g. the sectioning thereof
- E01B 29/13 for moving sleepers in a direction parallel to the rails, e.g. for spacing or aligning them ([E01B 29/10](#) takes precedence)
- E01B 29/14 for lifting sleepers up to the rails ([lifting devices in general B66F](#))
- E01B 29/16 . Transporting, laying, removing, or replacing rails; Moving rails placed on sleepers in the track ([E01B 29/05](#) takes precedence; moving or tilting heavy loads in general [B65G 7/00](#))
- E01B 29/17 . . . Lengths of rails assembled into strings, e.g. welded together
- E01B 29/20 . . . Moving rails placed on installed sleepers in the plane track
- E01B 29/22 . . . Raising rails from sleepers, e.g. for inserting sole-plates ([lifting devices in general B66F](#))
- E01B 29/24 . Fixing or removing detachable fastening means or accessories thereof; Pre-assembling track components by detachable fastening means ([E01B 29/02](#), [E01B 31/26](#) take precedence)
- E01B 29/26 . . . the fastening means being spikes ([E01B 29/16](#) takes precedence; hand-held tools for nail or staple driving or extracting [B25C](#))
- E01B 29/28 . . . the fastening means being of screw-and-nut type ([portable apparatus for fixing or removing screws or the like B25B](#)); Apparatus therefor, adapted to additionally drilling holes
- E01B 29/29 for horizontally-arranged fastening elements, e.g. fish-bolts
- E01B 29/32 . Installing or removing track components, not covered by the preceding groups, e.g. sole-plates, rail anchors ([E01B 31/26](#) takes precedence)
- E01B 29/40 . Means or arrangements for temporarily supporting laid tracks, or rails or sleepers in the track ([temporary fishplates E01B 11/18](#))

- E01B 29/42 . Undetachably joining or fastening track components in or on the track, e.g. by welding, by gluing; Pre-assembling track components by gluing; Sealing joints with filling components ([E01B 31/26](#) takes precedence; independent heating means [E01B 31/18](#); welding in general [B23K](#); gluing metal parts in general [F16B 11/00](#))
- E01B 29/44 . . Methods for effecting joining of rails in the track, e.g. taking account of ambient temperature
- E01B 29/46 . . Devices for holding, positioning, or urging together the rail ends ([adjusting the joint by moving rails E01B 29/20](#))

- E01B 31/00** **Working rails, sleepers, baseplates, or the like, in or on the line; Machines, tools, or auxiliary devices specially designed therefor** ([characterised by features independent of use on assembled track B21, B23 to B25, B27](#))

- E01B 31/02 . Working rail or other metal track components on the spot
- E01B 31/04 . . Sectioning or slitting, e.g. by sawing, shearing, flame-cutting
- E01B 31/06 . . Making holes, e.g. by drilling, punching, flame-cutting
- E01B 31/08 . . Bending, e.g. for straightening rails or rail joints ([for aligning rail ends to be welded E01B 29/46](#))
- E01B 31/12 . . Removing metal from rails, rail joints, or baseplates, e.g. for deburring welds, reconditioning worn rails
 - E01B 31/13 . . . by milling
 - E01B 31/15 . . . by planing or filing
 - E01B 31/17 . . . by grinding
 - E01B 31/175 {using grinding belts}
- E01B 31/18 . . Reconditioning or repairing worn or damaged parts on the spot, e.g. applying inlays, building-up rails by welding ([E01B 31/04 to E01B 31/12](#) take precedence); Heating or cooling of parts on the spot, e.g. for reducing joint gaps, for hardening rails

- E01B 31/20 . Working or treating non-metal sleepers in or on the line, e.g. marking, creosoting ([working metal sleepers E01B 31/02](#))
- E01B 31/22 . . Cutting or grinding wooden sleepers, e.g. for forming rail seats ([E01B 31/24](#) takes precedence)
- E01B 31/23 . . . Sectioning ([combined with removal of segments from track E01B 29/11](#))
- E01B 31/24 . . Forming, treating, reconditioning, or cleaning holes in sleepers; Drilling-templates ([E01B 29/28, E01B 31/26](#) take precedence)
- E01B 31/26 . . Inserting or removing inserts or fillings for holes in sleepers, e.g. plugs, sleeves
- E01B 31/28 . . Applying or removing anti-splitting or like reinforcing means ([E01B 31/26](#) takes precedence; [straps or bands therefor E01B 3/08](#))

- E01B 33/00** **Machines or devices for shifting tracks, with or without lifting, e.g. for aligning track, for shifting excavator track** ([combined with sleeper packing machines E01B 27/17](#))

- E01B 33/02 . for slewing, i.e. transversely shifting, in steps
- E01B 33/04 . . Manual tools; Devices not mounted on vehicles
- E01B 33/06 . for slewing in a continuous operation, e.g. for tracks which carry excavators

- E01B 33/08 . . Boom track-slewing machines
- E01B 33/10 . . Bridge track-slewing machines
- E01B 33/12 . . Combined boom and bridge track-slewing machines
- E01B 33/18 . . Details not peculiar to a particular type of machine
- E01B 33/21 . . . Arrangement or construction of rollers moving the rails

E01B 35/00 Applications of measuring apparatus or devices for track-building purposes
(apparatus on locomotives or cars to indicate or record bad track sections [B61K 9/00](#); measuring angles, linear dimensions, or irregularities in general [G01B](#), [G01C](#))

- E01B 35/02 . for spacing, for cross levelling; for laying-out curves
- E01B 35/04 . . Wheeled apparatus
- E01B 35/06 . for measuring irregularities in longitudinal direction
- E01B 35/08 . . for levelling
- E01B 35/10 . . for aligning
- E01B 35/12 . for measuring movement of the track or of the components thereof under rolling loads, e.g. depression of sleepers, increase of gauge

E01B 37/00 Making, maintaining, renewing, or taking-up the ballastway or the track, not provided for in a single one of groups [E01B 27/00](#) to [E01B 35/00](#)

E01B 2201/00 Fastening or restraining methods

- E01B 2201/02 . by wedging action
- E01B 2201/04 . by bolting, nailing or the like
- E01B 2201/06 . by eccentric or levering action
- E01B 2201/08 . by plastic or elastic deformation of fastener
- E01B 2201/10 . in alternative ways, e.g. glueing, welding, form-fits

Making, maintaining, renewing, or taking-up the ballastway or the track; Tools or machines specially designed therefor (derailing or rerailling of machines [B61K 5/00](#); removal of foreign matter from the permanent way, vegetation control applying liquids [E01H](#))

E01B 2202/00 Characteristics of moving parts of rail systems, e.g. switches, special frogs, tongues

- E01B 2202/02 . Nature of the movement
- E01B 2202/021 . . Turning or tilting or elastically bending

- E01B 2202/022 . . . about horizontal axis
- E01B 2202/024 . . . about vertical axis
- E01B 2202/025 .. Pure translation
- E01B 2202/027 .. Including a component perpendicular to the plane of the rails
- E01B 2202/028 . . . Movement along an inclined surface

- E01B 2202/04 . Nature of the support or bearing
- E01B 2202/042 .. Sliding
- E01B 2202/044 .. Rolling
- E01B 2202/046 . . . with rolls on fixed part
- E01B 2202/048 . . . with rolls on moving part
- E01B 2202/06 .. Use of friction-reducing surfaces

- E01B 2202/08 . Locking devices or mechanisms for inhibiting movement

E01B 2203/00 Devices for working the railway-superstructure

- E01B 2203/01 . with track
- E01B 2203/012 .. present, i.e. in its normal position
- E01B 2203/015 .. present but lifted
- E01B 2203/017 .. removed or not present yet

- E01B 2203/02 . Removing or re-contouring ballast
- E01B 2203/021 .. Blowing
- E01B 2203/022 .. Horizontal chain
- E01B 2203/024 .. Inclined chain
- E01B 2203/025 .. Suction
- E01B 2203/027 .. Sweeping
- E01B 2203/028 .. Alternative ways

- E01B 2203/03 . Displacing or storing ballast
- E01B 2203/032 .. with special use or configuration of conveyor belts
- E01B 2203/034 .. using storing containers
- E01B 2203/036 . . . fixed to vehicle
- E01B 2203/038 . . . detachable from the vehicle

- E01B 2203/04 . Cleaning or reconditioning ballast or ground beneath
- E01B 2203/042 .. in situ, e.g. vacuum-cleaners
- E01B 2203/045 .. the ballast having been taken up
- E01B 2203/047 .. Adding material, e.g. tar, glue, protective layers

- E01B 2203/06 . Placing ballast
- E01B 2203/062 .. New ballast
- E01B 2203/065 .. Re-use of ballast

- E01B 2203/067 . . Special methods for posing or quantifying ballast
- E01B 2203/08 . Levelling ballast or ground beneath
- E01B 2203/083 . . Ploughs
- E01B 2203/086 . . Rotating brooms
- E01B 2203/10 . Track-lifting or-lining devices or methods
- E01B 2203/12 . Tamping devices
- E01B 2203/122 . . for straight track
- E01B 2203/125 . . adapted for switches or crossings
- E01B 2203/127 . . vibrating the track surface
- E01B 2203/14 . Way of locomotion or support
- E01B 2203/141 . . on the track to be treated
- E01B 2203/143 . . on a side-track
- E01B 2203/145 . . on the ballast
- E01B 2203/146 . . using other means than driven wheels as propulsion means
- E01B 2203/148 . . having wheelsets that can be displaced horizontally or vertically
- E01B 2203/15 . Reducing impact of devices on environment
- E01B 2203/16 . Guiding or measuring means, e.g. for alignment, canting, stepwise propagation
- E01B 2203/17 . continually advancing
- E01B 2204/00 Characteristics of the track and its foundations**
- E01B 2204/01 . Elastic layers other than rail-pads, e.g. sleeper-shoes, bituconcrete
- E01B 2204/02 . Ballast bags
- E01B 2204/03 . Injecting, mixing or spraying additives into or onto ballast or underground
- E01B 2204/04 . Direct mechanical or chemical fixing of sleepers onto underground
- E01B 2204/05 . Use of geotextiles
- E01B 2204/06 . Height or lateral adjustment means or positioning means for slabs, sleepers or rails
- E01B 2204/07 . Drainage
- E01B 2204/08 . Deep or vertical foundation
- E01B 2204/09 . Ballastless systems
- E01B 2204/10 . Making longitudinal or transverse sleepers or slabs in situ or embedding them

- E01B 2204/11 . Embedded tracks, using prefab elements or injecting or pouring a curable material
- E01B 2204/12 . Floating rails or sleepers
- E01B 2204/13 . Dowels for slabs, sleepers or rail-fixings
- E01B 2204/14 . Vegetation on or around railway-tracks
- E01B 2204/15 . Layout or geometry of the track
- E01B 2204/16 . Specific granulometry of the ballast
- E01B 2205/00 **Electrical insulation of railway track parts****